

Application No. 10/614,217
Amendment dated March 1, 2006
Reply to Office Action of November 1, 2005

Atty. Docket No. 2855/97

REMARKS/ARGUMENTS

Claims 1-9 and 12-25 are pending in the application. Claims 1-8 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1-9 and 12-25 are rejected under 35 U.S.C. §103(a) as being unpatentable over Pendray et al. (U.S. Patent No. 6,678,119). Claim 1 is amended to over the 35 U.S.C. §112 rejection, and therefore the rejection of claims 1-8 should be withdrawn.

Applicant respectfully submits that nowhere does the Pendray reference teach, suggest or disclose “[a] subambient pressure air bearing slider comprising...a subambient pressure region ... wherein a width of a side air bearing surface in a latitudinal direction of the slider is selected to achieve a predetermined flying height sensitivity to camber in the slider” (e.g., as described in the embodiment of amended claim 1).

In its rejection of independent claims 1 and 9, the Office Action asserts that Pendray teaches the selection of a width of said side air bearing surface ... to achieve a predetermined flying height sensitivity to camber (and crowning) at column 6, lines 5-13 and column 5, lines 15-21. Column 5, lines 15-21 state:

In order to limit the reduction in pitch and roll stiffness and to limit fly height sensitivity to changes in altitude, slider 110 includes convergent channel features 190, 192 and 194, which are recessed within trailing bearing surfaces 154 of side rails 136 and 138 and within center rail bearing surface 162. These channels can also be referred to as trenches. (emphasis added)

Column 6, lines 5-13 state:

...Channels 190, 192 and 194 can be symmetrical about lateral center line 134, as shown in FIG. 2, or can be asymmetrical to provide preferential pressurization as certain slider skew angles.

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The size and intensity of the localized positive pressure gradient regions depend on the channel length-to-width ratio, the absolute sizes of the channels, the depth and shape of the channel floors, and the height of the column of air between the channel floor and the disc surface.

First, Applicants note that there is no mention of designing a slider with respect either crowning or camber (literally) at all in either cited section. There is, however, discussion in the Pendray reference of design with respect to "pitch" and "roll".

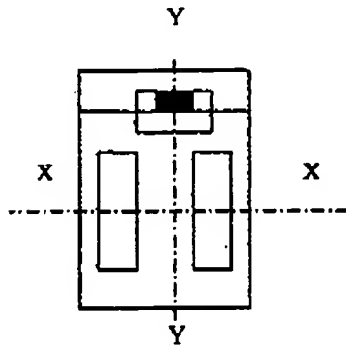
In forwarding its rejection, the Office Action seems to equate "pitch" to "crowning" and "roll" to "camber". See Office Action dated 11/1/2005, page 3, lines 13-14. This is clearly not the case. As is well known in the art, "pitch" and "roll" refer to *angles* that form between the slider and the surface of the disc. Optimally, the angle should be 0 degrees (the slider and disc surface should be parallel). However, when this is not the case, undesired angles form that are called the "pitch" angle and the "roll" angle. The cited section in Pendray is discussing design constraints to overcome the problems during the read/write process associated with the presence of such angles.

Camber and crowning on the other hand refer to the *curvature* characteristics of the slider body along a given axis. The following figures¹ illustrate the difference between the two concepts:

¹ The figure illustrating "pitch" and "roll" angles is taken from a technical paper. "A Micro Pitch and Roll Motion Sensor", found at <http://www.me.berkeley.edu/~Jwlin/papers/S&A2004pitchroll.pdf>

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The curvature on the X-X plane is the camber.

The curvature in the Y-Y plane is the crown

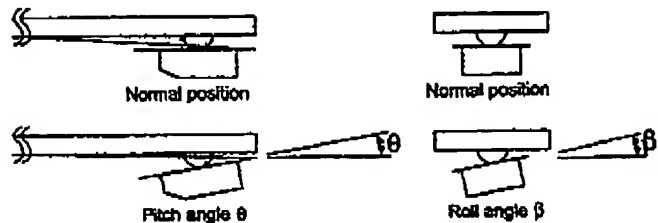


Fig. 1. Pitch and roll angle of the slider motion.

Therefore, it is clear that pitch and roll angles described in Pendray and the crowning and camber characteristics described in embodiments of the present invention are dissimilar concepts.

Applicants submit the cited reference is inadequate to serve as a basis for a proper rejection.

Since each and every limitation is not taught or suggested in the Pendray reference, independent claims 1 and 9 are in condition for allowance and the 35 U.S.C. 103(a) rejection should be withdrawn. The rejection of independent claims 12 (including similar allowable limitations) does not contain and specific citations, and presumably allowable over the cited reference for similar reasons. Claims 2-8, 10-11 and 13-25 depend from allowable independent claims and therefore are allowable.

For at least all the above reasons, the Applicant respectfully submit that this application is in condition for allowance. A Notice of Allowance is earnestly solicited.

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The Examiner is invited to contact the undersigned at (408) 975-7500 to discuss any matter concerning this application. The Office is hereby authorized to charge any additional fees or credit any overpayments under 37 C.F.R. § 1.16 or § 1.17 to Deposit Account No. 11-0600.

Respectfully submitted,

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Dated: March 1, 2006By: 

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